

Appln. No.: 10/524,253
Amendment Dated: October 4, 2007
Reply to Office Action of: July 10, 2007

MAT-8658US

Amendments to the Claims:

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This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims:

1.-6. (Cancelled).

7. (Currently Amended) ~~The adaptive antenna radio communication device according to claim 1,~~ An adaptive antenna radio communication device comprising:

an array antenna made up of a plurality of antenna elements receiving high frequency signals that are transmitted by a multi-carrier;

a demultiplexer for demultiplexing one of the high frequency signals received by a respective one of the antenna elements to a plurality of sub-carrier signals;

Nd divided band direction estimating units for estimating the direction-of-arrival of a radio wave by dividing the communication band being said multi-carrier transmitted into Nd bands and using ones of the plurality of sub-carrier signals belonging to the respective divided bands, wherein Nd is at least 2 or a positive integer less than a number of sub-carriers used for multi-carrier transmission,

a divided band array weight creating unit for creating a weight of a receive array having a directional beam in the direction of estimation by said divided band direction estimating unit for said respective divided bands;

a sub-carrier directivity creating unit for creating a directivity by multiplication-combining the receive array weight created in each divided band with the corresponding sub-carrier signal belonging to the divided band; and

a demodulating unit for demodulating data by using the output of said sub-carrier directivity creating unit.

wherein said divided band direction estimating unit further has a path search unit for calculating a delay profile by calculating a cross correlation between respective